

Lesson preparation book

Information & Communication Technology



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6th grade of primary school

Second Semester

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General & specific goals Second Semester



General goals

1. Understand the ethical considerations related to the use of artificial intelligence.
2. Understanding e-commerce concepts and mechanisms.
3. Develop effective communication skills with educational service providers.
4. Identify computer communication tools and their applications.
5. Acquire programming skills to deal with digital problems.
6. Mastering the use of image editing tools for different purposes.
7. Gain proficiency in operating systems and various software applications.
8. Develop the ability to write reports and share them effectively.
9. Learn to create engaging presentations using digital tools.
10. Understand the principles of creating and managing databases.

Specific goals

1. Analyze the ethical implications of artificial intelligence applications in various fields.
2. Evaluate the impact of e-commerce on companies and consumers.
3. Practice effective communication strategies when interacting with educational service providers.
4. Demonstrate proficiency in using computer communication tools to analyze and visualize data.
5. Apply problem-solving techniques to address digital issues through programming.
6. Use image editing tools to enhance and manipulate them for different purposes.
7. Demonstrate proficiency in navigating and using various operating systems and software applications.
8. Develop the ability to organize and present information effectively in written reports.
9. Create engaging and informative presentations using appropriate digital tools.
10. Design a database system to organize and data effectively.



Lesson (1)

Explorer in Action

Strategy

Problem Solving

Critical thinking

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- Give examples of technological tools used in designing computer games.
- train Artificial intelligence (AI) is to distinguish between images.
- Create ethical AI responses.

preface

Think about an educational game or computer game you've played. Were you able to learn and remember new information while playing?

Accompanying activities

Take the students to the computer room and ask them the introductory question. With a video presentation about (Aryam Mogos), a discussion began about the challenges that students face in designing artificial intelligence tools and ways to solve problems, exposing the elements of the lesson.

View Lesson

- o **Ariam Mogos** is a researcher and learning technologist who designs games to teach children and teens about the ethical implications of technology.
- o **Created games** that address social issues such as education and healthcare. Using paper models and the ScratchTM programming site for kids.
- o **Communities** are designed on WhatsAppTM to share student projects and ideas and monitor program implementation.
- o **"I Love Algorithms"** card game to illustrate the implications of machine learning algorithms.
- o **Establishment** of the National Council for Artificial Intelligence in 2019
- o **In 2023**, the growth of artificial intelligence and its training in Egypt.

Evaluation :

Why is it important to evaluate technology when it is used and when it is created?

Solve the book's questions on p. (12, 13)



Lesson (2)

Ethics of using artificial intelligence

Strategy

Random reading

Think ,Collaborate, Share

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- Identify artificial intelligence tools.
- Describe different ways in which (AI) is used.
- Discuss the importance of ethics when using AI.

preface

In your opinion, what does the phrase "code of ethics" mean and how can it be applied to technology and AI?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask them to work in groups to search for a common artificial intelligence tool, understand how it works and what is the benefit from it, and whether its designer followed ethical standards, and share what they found, while presenting the lesson with a random reading routine among the students.

View Lesson

- **Definition of AI** : Artificial intelligence (AI) uses human-like abilities in problem solving, reasoning, and decision-making to perform tasks by relying on algorithms.
- **Common AI tools**: (facial recognition), (navigation applications), (smart home devices), (chat robots on websites), (email filters), (friendship suggestions on social networking sites)

Ethical guidelines for artificial intelligence designers:

- **Universality**: Ensuring that AI tools are available to all users.
- **Unbiased data**: Decisions based on factual data, not personal opinions.
- Beneficial use**: Use artificial intelligence for societal benefit, not for exploitation.
- **Transparency**: Providing an explanation of how AI tools work.
- **Privacy and Security**: Protect user privacy and security.
- **Accountability**: Acknowledging errors in AI tools, correcting them.

Evaluation : Give an example of misuse of artificial intelligence and explain why.

Solve the book's questions on p. (16, 17)



Lesson (3)

E-Commerce

Strategy

Random reading

Think Collaborate Share

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- **Explain** what e-commerce is.
- **Discuss** the basic features of stocks and bonds.
- **Explain** how to use technological research tools to make purchasing decisions.

Preface

What do you think before purchasing any item online? What do you think before buying from regular stores?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask them in groups to identify a product that could help their school, explain how to use technological research tools to purchase it, and discuss it, while using a random reading routine among students to present the lesson.

View Lesson

E-Commerce:

1. **Definition:** Buying and selling goods and services over the Internet.
2. **Online stores:** The choices can be many but confusing for consumers.
3. **Technological research tools:**

- **Search engines:** provide information about the product and website, which helps in decision making.

- **Comparison sites:** Help compare products based on price and quality.

- **Online reviews:** User reviews from websites or social media help evaluate products,

Stocks and bonds:

1. **Stock Exchange:** The market for buying and selling shares (shares) of companies.
2. **Ownership:** Stocks represent ownership in the company, with returns
3. **Risk:** Company performance is affected by competition, reviews, and online news.
4. **Bonds:** Companies sell bonds to raise money.
5. **Investing:** Individuals can invest in stocks to support trusted companies or causes.

Evaluation : What is the concept of E- commerce? How can consumers make appropriate purchasing decisions?

Solve the book's questions, page (20, 21)





Lesson (4)

Communicate with educational service providers

Strategy

Practical application

Dialogue and discussion

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- **Explain** what educational service providers are.
- **Discuss** how to properly communicate with educational service providers.
- **Communicate** with an educational service provider.

preface

**Why are good
communication skills
important when
requesting information?**

Accompanying activities

Take the students to the computer room and ask them the introductory question. In groups, ask them to choose a topic related to a social issue or problem that may benefit others, and to write a formal e-mail to request information from an educational service provider, reviewing the elements of the lesson and applying them to the message in a practical way.

View Lesson

1. **Educational service providers** (ESPs) include both for-profit and non-profit organizations that provide educational support.
2. **ESPs** serve as valuable sources of information for students, including online libraries, educational publishing sites, and online museums.
3. Examples of popular educational providers include the Library of Alexandria and the Egyptian Knowledge Bank.
4. Students can contact (ESPs) for research or other educational needs, usually via email or chat windows on their websites.
5. When writing emails to ESPs, it is important to maintain a formal tone and clarity .
6. Automated responses that acknowledge receipt of the email and indicate when to expect a response are common from ESPs.
7. Chat windows on ESP sites may use chatbots for responses, requiring clear and focused requests from users.

Evaluation : What information should your message include when requesting information from an educational service provider?

Solve the book's questions, page (24, 25)



Lesson (5)

COMPUTATIONAL COMMUNICATION TOOLS

Strategy
Role play
Interactive training

Date				
Class				
per				

Objectives

By the end of the lesson the student will be able to:

- **Explain** the value of real-time communication.
- **Discuss** the tools available in a video conference.
- **Make** a presentation via a video conference.

preface

What are the pros and cons of communicating with others in real-time?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask them in groups to write a report on a topic and share it with the groups via a video conference on one of the platforms through role-playing, reviewing the elements of the lesson and ways to apply and work on them.

View Lesson

1. **Cloud computing** provides various tools for real-time communication, such as video chats, live TV shows, and instant chat rooms, which enable effective communication .
2. **Video conferencing** is a popular way to communicate in real-time, with platforms like Microsoft Teams and Google Meet widely used.
3. **Google Meet** allows users to easily create and join meetings.
 - To create a meeting, click New Meeting and choose to start immediately or schedule for later. Share the provided meeting link with participants.
 - To join Meet, paste the invitation link into the browser or enter it in the field provided. Agree to use microphone and camera upon entry.
4. **Before holding** a video conference, ensure there is a stable connection and resolve any software glitches.
5. **During the conference**, maintain professionalism by dressing appropriately, smiling, and speaking clearly. Use the microphone and camera controls as needed, refer to notes, and maintain eye contact with the camera.
6. **After the conference**, send a follow-up email with a summary or link to the recording if available.

Evaluation :

What is the importance of communication at the same time when interacting with others?

Solve the book's questions, page (28, 29)



Lesson (6)

Programming and digital problems and how to solve them

Strategy

Practical activities

Dialogue and discussion

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- **Explain** what JavaScript is and why it is important.
- **Identify** the purpose of programming languages.
- **Discuss** common digital problems and solutions.

preface

How does learning, discovering and solving programming problems contribute to building your self-confidence?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Divide them into small groups and assign each group a common numerical problem from the lesson. Encourage students to collaboratively brainstorm possible solutions and discuss the steps they would take to address each problem.

View Lesson

Programming languages:

are sets of commands used to write computer programs. Hypertext Markup Language (HTML) is commonly used to formulate web pages. Web content can be static (unchanging) or dynamic (changeable based on user interactions). HTML creates static content, while languages like JavaScript allow for dynamic content.

Here are some of the prevailing digital problems and their potential solutions:

1. Corrupt File.
2. Device won't charge.
3. Forgotten password
4. Accidental file deletion.
5. Error message when trying to save a file.



Evaluation :

Choose a common digital problem, provide a solution to it, and explain why you chose this solution?

Solve the book's questions, page (32, 33)



Lesson (7)

USING PHOTO EDITING TOOLS

Strategy

Project-based learning

Practical demonstration

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- **Explain** what image manipulation is and what it is used for.
- **Identify** some uses of photo editing tools.
- **Discuss** the advantages of using photo editing tools to show ideas.

preface

Have you ever edited the photos before publishing them? Think of three reasons people edit photos.

Accompanying activities

Take the students to the computer room and ask them the introductory question. Start by demonstrating the basic functions of GIMP, such as retouching, blending, and applying special effects. Show examples of before and after photos to illustrate the effect of editing. Discussing what they learned in groups and implementing it in the form of a project.

View Lesson

-Purpose of photo editing:

To enhance photos to look more professional and visually attractive.

- Program options:

-Expensive software such as Adobe Photoshop® is commonly used by graphic designers and photographers.

-Alternatively, GIMP provides similar features for free as open source software.

Advantages of GIMP:

- Lightweight and efficient software with minimal storage space.
- Extensive resources available for online learning.
- Customizable interface to customize tools according to user needs.

-Availability:

- Downloadable software with support for various file formats including PDF, GIF and JPEG, Option to use GIMP to edit images online through multiple websites.

Evaluation :

Discuss the pros and cons of free photo editing software like GIMP

Solve the book's questions, page (36, 37)

Strategy

Performance-based
evaluation



review

On the third
theme

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- Confirm the information, meanings and knowledge that I have acquired in the third theme.
- divide The curriculum into study units that are easy to review and retrieve.
- Solve according to what is required by the questions in the third theme.

preface

What are the most
important topics
of the third
theme?

View Lesson

A. Vocabulary... Write and compare. Write a sentence for each of the following pairs of phrases to explain the connection between them, then compare your sentences with those of a colleague.

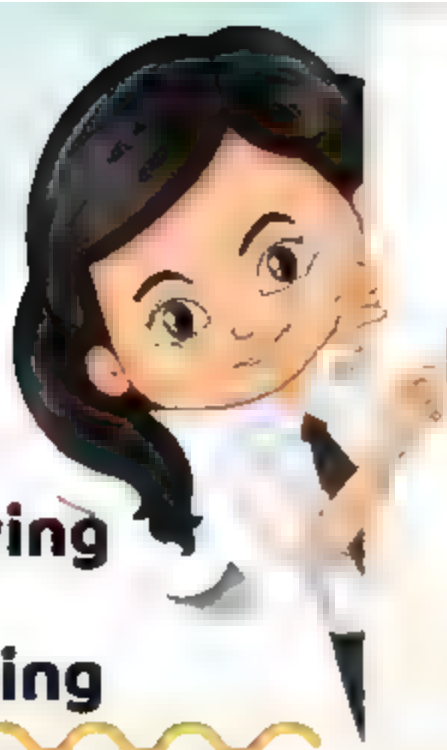
1. Comprehensiveness and artificial intelligence tools.
2. E-commerce and electronic exchange.
3. Video conferencing and communication at the same time.



B. Review questions: Read and answer:

1. What did Egypt launch in 2019 to help the country prepare for the emergence of artificial intelligence?
2. Mention three ethics that artificial intelligence designers must practice.
3. Give an example of a research tool that you can use about online shopping.
4. Give an example of an educational services provider.
5. What type of communication is video conferencing an example of?
6. What is HTML?
7. Mention a program that can be used to edit images.

Solve the rest of the review questions in the textbook



Lesson (1)

Explorer in action

Strategy

Problem Solving

Critical thinking

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- **Identify** how ICT tools can improve people's lives.
- **Research** online booking tools.
- **Design** an ICT tool for the transportation needs of my community.

preface

Why is it important to support small business owners? How can ICT tools improve their business?

Accompanying activities

Take the students to the computer room and ask them the introductory question. With a video presentation about (Soneka Manandhar), a discussion began about the importance of supporting small business owners and the technology tools that can be used.

View Lesson

- Sonika Manandhar:

- Fintech entrepreneur and National Geographic explorer from Nepal. She studied engineering, robotics and artificial intelligence at NASA Singularity University.

- Mission and initiatives:

- Aims to improve the local environment in Nepal by reducing carbon emissions. Identify the potential of small electric buses in reducing emissions.

- Establishment of Aloy:

- She co-founded Aloy in 2019, a fintech company to facilitate access to financial services. Aloy helps women minibus drivers in Nepal with low-interest loans for electric minibuses and battery upgrades.

- User experience and payment methods.

- Green Economy Initiative in Egypt,

Evaluation :

How can you apply the business model you learned in Egypt?

Solve the book's questions, page (44, 45)



strategy

Practical application

Dialogue and discussion

Lesson (2)

Operating systems and software

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- Explain the importance of operating systems.
- Identify the use and features of a control panel.
- Discuss how to remove software from a computer.

preface

Why might you choose to install or uninstall programs on your computer?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask them to discuss the topic of the lesson, identifying the main areas of the control panel and naming some examples of tools that can be used in each area.

View Lesson

Operating systems:

Definition: An operating system (OS) manages computer functions, coordinates hardware and software communications, and enables interaction between the user and the computer. Without it, computers become unusable.

- **mission:** Coordinate hardware and software communications. Check software requirements and computer components such as CPU, memory and storage. Enable smooth operation of computer and software functions.

- **Preloaded operating system:** Microsoft Windows: Common in laptops/PCs; Widely used in schools and organizations. macOS®: found on Macintosh computers; Usually more expensive. Smartphones/tablets: They use different operating systems such as Android and iOS.

- Control system settings:

- Windows: Control Panel. - iOS: Control Center.

- MacOS: System Preferences.

Evaluation :

Why is the operating system an essential part of the software on computers?

Solve the book's questions, page (48, 49)



Lesson (3)

Writing and sharing reports

Strategy

Cooperative education

Learning through discovery

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- Discuss using messaging services to communicate ideas.
- Evaluate information using ICT creation tools.
- Use Microsoft Word to write a report.

preface

Which ICT tools do you use to write a report and share it with others?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask them to work in groups to look for differences between messaging services, and write a report evaluating what they found and taking notes on it.

View Lesson

writing reports :

Microsoft Word remains the most reliable tool for creating reports and sharing information. Users usually feel comfortable writing reports in Microsoft Word and using its various tools. Users can choose from different designs by accessing the Layout and Insert tabs and selecting preferred elements for their reports.

- layout tab. - Insert tab. - Formatting and editing tools.

Messaging services: Messaging services such as WhatsApp can be used to communicate ideas and share information.

Features of messaging services:

Message content: As with text messages, users can send texts, photos, voice messages, and videos. **Group chat:** Messages can be sent to one or several people at once. **Cost:** Sending and receiving messages is usually free because they use the Internet. **Global Communications:** There are no additional costs to message someone around the world. **Security:** Messages are encrypted, ensuring that only the intended recipient can view them.

Evaluation :

How can you use design elements to increase the professionalism of your report?

Solve the book's questions, page (52, 53)



Lesson (4)

Create presentations

Strategy

Cooperative education

Dialogue and discussion

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- Discuss using PowerPoint to share opinions.
- Design a suitable presentation to present my ideas.
- Express an opinion about an educational or environmental issue using PowerPoint.

preface

How do you express your opinions or ideas to others?

What communication methods do you use?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask them to work in a group and discuss how to use the creation tools in PowerPoint to create presentations in which they express their opinions while keeping their notes during the discussion.

View Lesson

1. Microsoft PowerPoint Features: Microsoft PowerPoint offers drawing and writing tools along with animation options to add movement to text, which enhances the effectiveness of the presentation in conveying ideas and opinions.

2. Presentation creation tools:

- Design Tab: Provides options to choose the slide size (standard or widescreen) and customize the slide size as per preference.
- Save As: Provides the option to save presentations as PDF files to preserve formatting before printing.
- Editing in review mode
- Themes and variables:
- Print - Insert images
- Text box



Evaluation :

Choose one of the presentation creation tools you learned about and explain why it is important.

Solve the book's questions, page (56, 57)



Lesson (5)

CREATING A DATABASE

Strategy

Practical application
Cooperative education

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- Discuss what a database is and why it's useful.
- Explain how to use common Excel tools.
- Create a database.

preface

How can you organize the information you presented intelligently so that you can analyze the results and make a decision?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask them to create a database that includes the favorite sports hobbies of their classmates through the favorite hobbies columns and then analyze the collected information.

View Lesson

Databases :

- They are computer systems that store large amounts of information, which can be easily analyzed or modified to suit the needs of users. They are used to collect data about people, places, or things, such as student information in schools or employee records in companies.

Ms Excel can be used to create databases, providing an easy-to-use platform for organizing and managing data. The process involves selecting column headings or field names and entering relevant information into the corresponding cells.

- Steps to create a database in Ms Excel:

1. Start by selecting cells A1, B1, and C1 to enter column headings or field names.
2. Enter the ID number in the designated column.
3. Enter the class name and move to the next column.
4. Add the student's name in the appropriate column.
5. To merge additional information columns, right-click at the top of the column, select Insert Column, and specify a new column title.

- Using common Excel tools

Evaluation :

What is the purpose of the database?

Solve the book's questions, page (60, 61)



Lesson (6)

Creating digital projects

strategy

Practical application

Dialogue and discussion

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- Discuss how PowerPoint can help you to share information with others.
- Explain the purpose of a flowchart.
- Create a digital project using PowerPoint.

preface

What ways can you use PowerPoint to share information with others?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask them to discuss what they learned in this topic, such as problem solving, programming, and take notes during the discussion. With practice on creating flow charts in the program.

View Lesson

1. PowerPoint is a valuable presentation tool that allows information to be shared through text and visuals such as photos, videos, animations, and graphics, which enhances understanding compared to plain text.
2. Flowcharts can be included in PowerPoint presentations to illustrate a series of steps, and are useful for various scenarios such as visualizing, planning, presenting, and tracking the progress of tasks or projects, including programming projects.
3. Steps to create a Flowchart in PowerPoint:
 - Access the Insert tab and click on SmartArt.
 - Choose a SmartArt graphic, such as the menu.
 - Review the Flowchart options in the dialog box and select one.
 - Add information by clicking [Text] in the flowchart.
 - Customize colors to enhance the visual appearance with SmartArt design options such as changing colors or SmartArt styles.
4. Display tips.

Evaluation:

Discuss the benefits of using PowerPoint to share information with others.

Solve the book's questions, page (64, 65)

Strategy
Performance-based
evaluation



review On the fourth theme

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- Confirm the information, meanings and knowledge that acquired in the 4th theme.
- divide The curriculum into study units that are easy to review and retrieve.
- Solve according to what is required by the questions in the 4th theme.

preface

What are the most
important topics of
the fourth theme?

View Lesson

A. Vocabulary... Write and compare. Write a sentence for each of the following pairs of phrases to explain the connection between them, then compare your sentences with those of a colleague.

1. Database and Microsoft Excel.
2. Operation and communication systems.
3. Flowcharts and PowerPoint.

B. Review questions: Read and answer:

1. How does ALOI, founded by Miss Manandhar, help people?
2. What is the purpose of using messaging services like WhatsApp™?
3. What is the purpose of using databases?
4. Give an example of using a database to organize information.
5. Name one of the construction tools that can be used in presentations.
6. How can flowcharts be used as part of a specific project?

Solve the rest of the review questions in the textbook